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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,871	03/13/2001	Roger F. Burlingame	LIT3-BN17	1814

7590 09/04/2002

Albin H. Gess
Price and Gess
Suite 250
2100 S.E. Main Street
Irvine, CA 92614-6238

EXAMINER

BELLAMY, TAMIKO D

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 09/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,871

Applicant(s)

BURLINGAME, ROGER F.

Examiner

Tamiko D. Bellamy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/13/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-6, 8, 10-12, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Flusche (3,998,105).

As to claim 1, Flusche discloses in Figs. 1 and 2 a rotor 28 mounted on a shaft 20 and having a circular flange 14, a suspension member having a flexible flange 32 (col. 2, lines 40-46), a device for spinning said shaft and rotor (col. 2, lines 35-40), a light source 36 on said stationary plate 34, and a light sensor 38 on said stationary plate 34 (col. 2, line 47).

As to claim 2, Flusche discloses in Fig. 1 a circular flange 14 on surface of rotor 28.

As to claims 4 and 11, Flusche discloses in Figs. 1 and 4 a flexible flange 32 that is adapted to allow said rotor 28 to tilt (col. 4, lines 21-29).

As to claim 5, Flusche discloses in Fig. 1 an electric drive motor 22 for spinning said shaft 20 and rotor 28 is a synchronous motor (col. 1, lines 10-13, col. 2, lines 35-40).

As to claim 6, Flusche discloses in Figs 1 and 2 a light source 36 of said rotor 28 that has at least one emitting diode 36 and one light sensor 48.

As to claim 8, Flusche discloses a rotor 28 formed from a metal (col. 2, lines 40-42). The rotor 28 is constructed from a suitable elastic material such as metal, which is inherently a molded metal.

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As to claim 10, Flusche discloses in Figs. 1 and 2 a rotor 28 having a circular flange 14 extending from and perpendicular to one surface, a suspension member having a flexible flange 32 (col. 2, lines 40-46), a light source 36 on said stationary plate 34, and a light sensor 38 on said stationary plate 34 (col. 2, line 47), and a light source and light sensor positioned such that only a portion of light from said source strikes said sensor. The ring portion of the circular flange 14 is inherently perpendicular to one surface. In Fig. 1, Flusche makes use of a light source 36 that illuminates the rotor 28 and which reflects back to the pick-off plate 34 (col. 2, lines 47-63). The reflections of light source 36 represented by the arrows inherently strikes a portion of the sensor 38 as claimed.

As to claim 12, Flusche discloses in Figs 1 and 2 a light source 36 of said rotor 28 that has at least one emitting diode 36 (col. 3, lines 3-4).

As to claim 14, Flusche discloses in Figs. 1 and 2 a flexible flange 32 of said suspension member is suspended from the body of said member at only two points on the periphery. The flexible flange 32 is circular shape on a two-axis rate sensor; therefore it is suspended from the body at two points periphery

As to claim 15, Flusche discloses in Figs. 2 and 3 a direct current that is produced by said sensors 38 (col. 3, lines 57-63).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3, 7, 9, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flusche (3,998,105) in view of Kan et al. (4,914,291).

As to claim 3, Flusche discloses in Fig. 1 a suspension member that is formed from one piece of metal. One-piece construction, in place of separate elements fastened together, is a design consideration within the skill of the art. In re Kohno, 391 F.2d 959, 157 USPQ 275 (CCPA 1968); In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965).

Flusche does not clearly disclose a rotor that is machined from steel (cl. 9), four light emitting diodes (cls. 7 and 13), and a sinusoidal waveform that is produced in response to an angular force (cl. 16). As it is well known to those skilled in this art, to have a rotor that is made of metal; furthermore, it is the designer's choice to use a steel as the preferred metal. Flusche does apply a yaw and pitch torque to the housing of the rate sensor causing the rotor to deflect along the x-axis and y-axis respectively. The deflection is a function of the rate of movement. Hence, the resultant outputs from an amplifier are dc voltages that are proportional to the rate of rotation about the x-axis and y-axis; and a sinusoidal waveform is produced in response to the angular forces applied thereto.

As to claims 7 and 13, Kan et al. discloses in Fig. 1 four light emitting diodes (col. 3, line 26). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Flusche to include the teachings of Kan et al. since the prior art is the same field of endeavor to provide four light emitting diodes for the purpose providing an angle detector with better angle resolution (Kan et al. col. 2, lines 7-28).

5. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flusche (3,998,105) in view of Duncan (4269,072).

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As to claim 17, Flusche discloses in Figs. 1 and 2 a rotor 28 having a circular flange 14 extending from and perpendicular to one surface having, a suspension member having a flexible flange 32 (col. 2, lines 40-46), a light source 36 on said stationary plate 34, and a light sensor 38 on said stationary plate 34 (col. 2, line 47), and a light source and light sensor positioned such that only a portion of light from said source strikes said sensor when said gyro is in a quiescent rotating state. The ring portion of the circular flange 14 is inherently perpendicular to one surface. In Fig. 1, Flusche makes use of a light source 36 that illuminates the rotor 28 and which reflects back to the pick-off plate 34 (col. 2, lines 47-63). The reflections of light source 36 represented by the arrows inherently strikes a portion of the sensor 38 as claimed. Flusche also makes use of regulated power source for the emitting diode (col. 3, lines 1-10). It is well known to a person having ordinary skill in the art that providing a regulated power source periodically provides light that is reflected to the light sensors; therefore the gyro is periodically in a quiescent rotating state as claimed.

As to claim 17, the only difference between the prior art and the claimed invention is the rotor having a notch. Duncan discloses in Fig. 1 and 2A a rotor 16 having a circular flange 37 and having a notch 55 therein (col. 5, lines 37-44, col. 6, lines 38-44). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Flusche as modified by Duncan, to include a circular flange having a notch for the purpose of providing a rotor gyroscope that is integrally one element and to provide a more efficient and precise device to obtain better and accurate measurements.

As to claim 20, Flusche discloses in Figs. 1 and 4 a suspension member flexible flange 32 that is adapted to allow said rotor 28 to tilt (col. 4, lines 21-29).

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Flusche does not specifically disclose a rotor having a notch therein (cl.17), a demodulator for demodulating said electrical signal (cl.18), and a frequency signal is used for synchronizing operation of said demodulator (cl. 19).

6. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flusche (3,998,105) in view of Duncan (4,269,072) as applied to claims 17 and 20 above, and further in view of Paquet et al. (5,138,883).

Flusche as modified by Duncan, does not teach a demodulator for demodulating said electrical signal (cl.18), a frequency signal is used for synchronizing operation of said demodulator (cl. 19).

As to claim 18, Paquet et al. discloses in Fig. 3 a demodulator 110 for demodulating said electrical signal (col. 5, lines 18-27).

As to claim 19, Paquet et al. discloses in Fig. 4 a frequency signal 132 is used for synchronizing operation of said demodulator 110(col. 5, lines 38-41, 50-53).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Flusche as modified by Duncan, with the limitations taught by Paquet et al. to include a demodulator and a frequency signal that synchronizes the operation of the demodulator for the purpose of providing a rotor gyroscope that has a precise output measurement of angular rate (Paquet et al., col. 1, lines 14-17).

Conclusion

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (703) 305-4971.

The examiner can normally be reached on Monday through Friday 8:30 AM to 5:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tamiko Bellamy

T.B.

August 16, 2002


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800